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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/607,024	EID ET AL.	
	Examiner	Art Unit	
	CON P. TRAN	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 August 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,5-28 and 33-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-28 and 33-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/16/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1, 2, 5, 7, 16, 18, 33-34, 37, and 41** are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis U.S. Patent 5,862,228 in view of Admitted Prior Art (hereinafter, "APA").

Regarding **claim 1**, Davis teaches a multi-channel matrix decoder module (Fig. 3; col. 4, lines 32-47) for generating a plurality of audio output signals (to audio reproducing transducers) from a plurality of audio input signals (Lt, Rt; 4:2 encoding, col. 1, lines 4-7; see also Fig. 1, Lt, Rt comprising L, R, C, S, col. 1, lines 34-47), the plurality of audio input signals directed to different locations in the environment (to audio transducers, not shown; col. 4, lines 32-47; locations are not limited to speakers location arrangement, e.g., left, right, center, surround; at 2:4 decoder Lt, Rt output L, R, C, S, see col. 1, lines 12-26), the audio output signals for generating sound waves in an environment (to audio transducers, not shown), the decoder module, comprising:

an input mixer (linear mixer 102, Fig. 3) that produces an input signal pair (Lt', Rt') using the plurality of audio input signals (Lt, Rt, Lt1/Rt1 through Ltn/Rtn) each of the plurality of the input signal pairs (Lt, Rt, Lt1/Rt1 through Ltn/Rtn; 4:2 encoding, col. 1, lines 4-7) being non-inverses of one another (e.g., linear mixer) and directed to different locations in the environment (to audio transducers, not shown; col. 4, lines 32-47; locations are not limited to speakers location arrangement, e.g., left, right, center, surround; at 2:4 decoder Lt, Rt output L, R, C, S, see col. 1, lines 12-26);

a matrix decoder (matrix decoder 104, Fig. 3) coupled to the input mixer (linear mixer 102, see Fig. 3), and outputting output signals for the location correlated to the input signal pair received (left, right, center; see Fig. 6).

Davis further discloses may be used the encoder with one or more other virtual encoder (i.e., providing more input pairs, other than Lt and Rt, to mixer 102 in Fig. 3; col. 3, lines 40-46). Davis does not explicitly specify an input mixer produces a plurality of input signal pairs. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to produce the plurality of input signal pairs by duplicating the mixer such that to obtain the plurality of input signal pairs for multiple effect (matrix-encoded audio signals Lt1/Rt1 through Ltn/Rtn, col. 4, lines 32-46). In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

Davis discloses the decoder may be a Dolby Pro Logic decoder. However, Davis does not explicitly specify the matrix decoder comprising the plurality of audio input signals being directed to different locations, at least one of the input signal pairs being based on at least one of the audio input signals from a different location.

APA disclose "an input signal pair may be created for use by known matrix decoding techniques determining one or more steering angles (the "steering angle input pair" or "SAIP")," see Specification, page 22; and "The matrix decoder 736 including rear and side outputs; may be a known active matrix decoder such as LOGIC 7® , DOLBY PRO LOGIC®, or the like," See Specification, page 26; Figure 7. It is noted that LOGIC 7® comprising 5.1 input generating 7 outputs.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have incorporated the matrix decoder by APA with the multi-channel matrix decoder module of Davis such that the matrix decoder comprising the plurality of audio input signals being directed to different locations, at least one of the input signal pairs being based on at least one of the audio input signals from a different location as claimed for purpose of providing a totally user-generated soundfield, as suggested by Davis in column 3, lines 45-46.

Regarding **claim 2**, this claim merely reflects the method to the apparatus claim of claim 1 and is therefore rejected for the same reasons.

Regarding **claim 5**, Claim 5 is also meet in view of the above discussion in Claim 1.

Regarding **claim 7**, Claim 7 is also meet in view of the above discussion in Claim 1.

Regarding **claim 16**, this claim merely reflects the method to the apparatus claim of claim 5 and is therefore rejected for the same reasons.

Regarding **claim 18**, this claim merely reflects the method to the apparatus claim of claim 7 and is therefore rejected for the same reasons.

Regarding **claim 33,** Davis in view of APA teaches the decoder module of Claim 1, where the plurality of audio input signals comprise a left-front input signal, a right-front input signal, and at least one additional input signal (APA, see Specification, page 26, [078]; Figure 7); and

where the input mixer (linear mixer 102, Fig. 3, see Davis) produces at least one input signal pair using each of the plurality of audio input signals (Lt', Rt'; see Davis col. 4, lines 32-47).

Regarding **claim 34**, Davis in view of APA teaches the decoder module of Claim 33, where the input signal pair comprises a rear input signal pair (for rear sub-matrix 738, APA, see Specification, page 26, [078]; Figure 7); and

where the multi-channel matrix decoder module generates audio output signals for rear loudspeakers whenever there is any signal on any of the plurality of input signals (rear outputs iRRO, iLFO, APA, see Specification, page 26, [078]; Figure 7).

Regarding **claim 37**, Davis in view of APA teaches the decoder module of Claim 1. Davis, as modified, further teaches where the plurality of audio input signals comprises n signals (two: Lt and Rt, see Fig. 3), and

where the input mixer produces m (two: Lt' and Rt', see Fig. 3) input signal pairs, where m*2 (equal 4) is greater than n (i.e., two).

Regarding **claim 41,** this claim has similar limitations as Claim 1. Therefore it is interpreted and rejected under Davis in view of APA for the reasons set forth in the rejection of Claim 1.

3. **Claims 6, 8-15, 17, 19-28, 38-40, and 42-43** are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis U.S. Patent 5,862,228 in view of Admitted Prior Art (hereinafter, "APA"), and further in view of Griesinger U.S. Patent 5,787,480.

Regarding **claim 6**, Davis in view of APA teaches a decoder module of claim 1. However, Davis in view of APA does not explicitly disclose where at least one of the input signal pairs produced by the input mixer comprises a rear input signal pair, a side input signal pair, or a front input signal pair.

Griesinger discloses a multichannel active matrix decoder (see Title) in which the input pairs input at active matrix decoder (90, Fig. 4; col. 20, lines 21-26) including five discrete inputs LS, L, C, R, and RS (col. 12, lines 37-44, Fig. 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the multichannel active matrix decoder taught by Griesinger with the decoder module of Davis in view of APA such that at least one of the input signal pairs produced by the input mixer comprises a rear input signal pair, a side input signal pair, or a front input signal pair in order to optimize its psychoacoustic performance, as suggested by Griesinger in column 3, lines 39-41.

Regarding **claim 8**, Davis in view of APA teaches a decoder module of claim 7. However, Davis in view of APA does not explicitly disclose where the plurality of audio input signals comprises a left-front, a right-front, a left-surround, a right-surround, and a center input signal, and producing the steering angle input pair comprises converting the left-front, the right-front, the left-surround, the right-surround, and the center input signals into the steering angle input pair.

Griesinger discloses a multichannel active matrix decoder (see Title) where the plurality of audio input signals comprises a left-front, a right-front, a left-surround, a right-surround, and a center input signal (L, R, LS, RS, and C, respectively; col. 12, lines 37-44, Fig. 3), and producing the steering angle (θ_{RS}, θ_{LS}; control signal and steering angles; Figs. 9, 10, col. 6, lines 8-16; col. 11, lines 8-12) input pair comprises converting the left-front, the right-front, the left-surround, the right-surround, and the center input signals into the steering angle input pair (based on l/r, c/s Fig. 4, col. 20, lines 21-26, lines 53-65; col. 14, lines 23-36; col. 16, lines 11-20; col. 22, lines 46-58; col. 23, lines 58-65; col. 25, lines 18-29; col. 26, lines 27-33).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the multichannel active matrix decoder taught by Griesinger with the decoder module of Davis in view of APA such that where the plurality of audio input signals comprises a left-front, a right-front, a left-surround, a right-surround, and a center input signal, and producing the steering angle input pair comprises converting the left-front, the right-front, the left-surround, the right-surround, and the center input signals into the steering angle input pair as claimed in order to optimize its psychoacoustic performance, as suggested by Griesinger in column 3, lines 39-41.

Regarding **claim 9**, Davis in view of APA teaches a decoder module of claim 1. However, Davis in view of APA does not explicitly disclose where input to each of the sections for the different locations of the matrix decoder consists of the input signal pair received for the different locations and steering angle input.

Griesinger discloses a multichannel active matrix decoder (see Title) in which input to each of the sections for the different locations of the matrix decoder consists of the input signal pair received for the different locations and steering angle input (col. 4, lines 11-19; to speakers of channels L, R, LS, RS, and C; col. 12, lines 37-44, Figs. 3, 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the multichannel active matrix decoder taught by Griesinger with the decoder module of Davis in view of APA such that where input to

each of the sections for the different locations of the matrix decoder consists of the input signal pair received for the different locations and steering angle input as claimed in order to optimize its psychoacoustic performance, as suggested by Griesinger in column 3, lines 39-41.

Regarding **claim 10**, Davis in view of APA teaches a decoder module of claim 1. However, Davis in view of APA does not explicitly disclose where the sections of the matrix decoder comprises a plurality of submatrices, each submatrix receiving input from one of the plurality of input signal pairs.

Griesinger discloses a multichannel active matrix decoder (see Title) in which the sections of the matrix decoder comprises a plurality of submatrices (in matrix elements section, Fig. 4), each submatrix receiving input from one of the plurality of input signal pairs (col. 4, lines 11-19; encoded signals of channels of Fig. 3; col. 12, lines 37-44, see Figs. 3, 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the multichannel active matrix decoder taught by Griesinger with the decoder module of Davis in view of APA such that where the sections of the matrix decoder comprises a plurality of submatrices, each submatrix receiving input from one of the plurality of input signal pairs as claimed in order to optimize its psychoacoustic performance, as suggested by Griesinger in column 3, lines 39-41.

Regarding **claim 11**, Davis in view of APA and further in view of Griesinger teaches a decoder module of claim 10. Griesinger, as modified, further teaches where the input mixer produces a rear input signal pair (col. 12, lines 37-44, Figs. 3, 4); and where one of the plurality of submatrices comprises a rear submatrix that inputs the rear input signal pair (152, 154, 156, 158, Fig. 4) and produces a plurality of rear output signals as a function of the rear input signal pair (LS, 178; RS, 180, Fig. 4).

Regarding **claim 12**, Davis in view of APA and further in view of Griesinger teaches a decoder module of claim 11. Griesinger, as modified, further teaches in Fig. 6c, curves J and K represent the values of the coefficients LSL and LSR respectively as the ratio l/r goes from 0 dB (no steering or center steering) to 33 dB, representing full left steering; there is a break point at 8 dB, corresponding to a steering angle of 22° to the rear, and this is achieved if they have values of cos 22° or 0.92 and sin 22° or 0.38, as can be seen from the curves (Fig. 6, col. 22, lines 46-58). In addition, Griesinger discloses:

Right rear/side output=RSL cos(ts) + RSR sin(ts) = 0 (col. 17, equation 69);

and

Left output (A)=L+0.707C-0.707jS (col. 11, equation 17, Fig. 3).

Thus,

Left output (A)=L+(0.707C-0.707jS)+ RSL cos(ts)+RSR sin(ts);

at ts=22.5°

Left output (A)=L+(0.707C-0.707jS)+ RSL (0.9)+RSR (0.38)

or

Left output (A)=L+ (0.9)RSL +(0.38)RSR +(0.707C-0.707jS)

where

Left output (A) becomes an encoded signal of five channel outputs. Left output (A) inputs to five channel decoder (90, Fig. 3), and the decoder provides seven channel outputs (col. 20, lines 1-5).

However, Davis in view of APA and further in view of Griesinger does not explicitly discloses where at least one of the signals in the rear input signal pair is produced by the input mixer according to an equation:

RI1=LF1+0.9xLSurI-0.38xRSurI+GrxCTRI,

where Gr comprises a ratio with the center input signal to control the amount of the center input signal in the rear input signal pair,

LFI comprises a left-front input signal,

LSurI comprises a left-surround input signal,

RSurI comprises a right-surround input signal, and

CTRI comprises a center input signal.

Nevertheless, such implementation is well known in the art. (Official notice taken). As can see from equation:

Left output (A)=L+ (0.9)RSL +(0.38)RSR +(0.707C-0.707jS)

where

Left output (A) becomes an encoded signal of five channel outputs. Left output (A) inputs to five channel decoder (90, Fig. 3), and the decoder provides seven channel outputs (col. 20, lines 1-5);

one of skill in the art would have been able to derive:

RI1=LF1+0.9xLSurI-0.38xRSurI+GrxCTRI,

where Gr comprises a ratio with the center input signal to control the amount of the center input signal in the rear input signal pair,

LFI comprises a left-front input signal,

LSurI comprises a left-surround input signal,

RSurI comprises a right-surround input signal, and

CTRI comprises a center input signal.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have implement the decoder module taught by Davis in view of APA and further in view of Griesinger such that where at least one of the signals in the rear input signal pair is produced by the input mixer according to an equation as claimed in order to optimize its psychoacoustic performance, as suggested by Griesinger in column 3, lines 39-41.

Regarding **claim 13**, Davis in view of APA and further in view of Griesinger teaches a decoder module of claim 11. Griesinger, as modified, further teaches where at least some of the plurality of audio input signals comprise the same locations (Left,

Right inputs, Fig. 4) as at least some of the plurality of audio output signals (L, R outputs, Fig. 4; col. 20, lines 1-10).

Regarding **claim 14**, Davis in view of APA and further in view of Griesinger teaches a decoder module of claim 11. Griesinger, as modified, further teaches where the at least some of the plurality of audio input signals comprise a left-front input signal and a right-front input signal (Left, Right inputs, Fig. 4; col. 20, lines 1-10, lines 21-26); and

where the at least some of the plurality of audio output signals comprise a left-front output signal and a right-front output signal (L, R outputs, Fig. 4; col. 20, lines 1-10, lines 21-26).

Regarding **claim 15**, Davis in view of APA and further in view of Griesinger teaches a decoder module of claim 11. Griesinger, as modified, further teaches where the at least some of the plurality of audio input signals comprises a center input signal (i.e., output C from encoder of Fig. 3, see col. 20, lines 21-26; Fig, 4; col. 20, lines 1-10); and

where the at least some of the plurality of audio output signals comprise a center output signal (see col. 20, lines 21-26; Fig, 4; col. 20, lines 1-10).

Regarding **claims 17, 19-23, 26-28** these claims merely reflect the method to the apparatus claim of **claims 6, 8-15**, respectively and are therefore rejected for the same reasons.

Regarding **claim 24**, Davis in view of APA teaches a decoder module of claim 2. However, Davis in view of APA does not explicitly disclose further comprising producing an additional audio output signal as a function of one or more of the plurality of audio output signals.

Griesinger discloses a multichannel active matrix decoder (see Title) in which the input pairs input at active matrix decoder (90, Fig. 4; col. 20, lines 21-26) including five discrete inputs LS, L, C, R, and RS (col. 12, lines 37-44, Fig. 3); and producing an additional audio output signal as a function of one or more of the plurality of audio output signals (i.e. seven channels including left side and right side outputs, col. 20, lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the multichannel active matrix decoder taught by Griesinger with the decoder module of Davis in view of APA such that producing an additional audio output signal as a function of one or more of the plurality of audio output signals as claimed in order to optimize its psychoacoustic performance, as suggested by Griesinger in column 3, lines 39-41.

Regarding **claim 25**, Davis in view of APA and further in view of Griesinger teaches a decoder module of claim 24. Griesinger, as modified, further teaches where the plurality of audio output signals comprises a side output signal (i.e. seven channels including left side and right side outputs, col. 20, lines 1-10); and

where producing an additional audio output signal comprises producing an additional side output signal (i.e. seven channels including left side and right side outputs, col. 20, lines 1-10).

Regarding **claim 38**, Davis in view of APA teaches a decoder module of claim 37. However, Davis in view of APA does not explicitly disclose where the plurality of audio input signals comprise a left front input signal, a right front input signal, a center input signal, a left surround input signal, and a fight surround input signal; and where the input mixer produces a rear input pair, the surround input pair, and the front input pair from the plurality of audio input signals.

Griesinger discloses a multichannel active matrix decoder (see Title) where the plurality of audio input signals comprises a left-front, a right-front, a left-surround, a right-surround, and a center input signal (L, R, LS, RS, and C, respectively; col. 12, lines 37-44, Fig. 3), and producing the steering angle (θ_{RS}, θ_{LS}; control signal and steering angles; Figs. 9, 10, col. 6, lines 8-16; col. 11, lines 8-12) input pair comprises converting the left-front, the right-front, the left-surround, the right-surround, and the center input signals into the steering angle input pair (based on l/r, c/s Fig. 4, col. 20,

lines 21-26, lines 53-65; col. 14, lines 23-36; col. 16, lines 11-20; col. 22, lines 46-58; col. 23, lines 58-65; col. 25, lines 18-29; col. 26, lines 27-33, lines 51-56).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the multichannel active matrix decoder taught by Griesinger with the decoder module of Davis in view of APA such that where the plurality of audio input signals comprise a left front input signal, a right front input signal, a center input signal, a left surround input signal, and a fight surround input signal; and where the input mixer produces a rear input pair, the surround input pair, and the front input pair from the plurality of audio input signals as claimed in order to optimize its psychoacoustic performance, as suggested by Griesinger in column 3, lines 39-41.

Regarding **claim 39**, Claim 39 also met in view of the above rejection of claim 38 (steering angle input pair based on l/r, c/s Fig. 4).

Regarding **claim 40**, Davis in view of APA teaches a decoder module of claim 1. Davis in view of APA does not explicitly disclose where the plurality of audio input signals exclude any rear input signals; and

where the input mixer produces a rear input pair from the plurality of audio input signals.

Griesinger, discloses where the plurality of audio input signals exclude any rear input signals (only Left and Right inputs, see Fig. 4); and

where the input mixer produces a rear input pair from the plurality of audio input signals (LS, 178; RS, 180, Fig. 4; col. 20, lines 1-5, lines 21-26).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the multichannel active matrix decoder taught by Griesinger with the decoder module of Davis in view of APA such that where the plurality of audio input signals exclude any rear input signals; and where the input mixer produces a rear input pair from the plurality of audio input signals as claimed in order to optimize its psychoacoustic performance, as suggested by Griesinger in column 3, lines 39-41.

Regarding **claim 42,** this claim has similar limitations as Claim 11. Therefore it is interpreted and rejected under Davis in view of APA and further in view of Griesinger for the reasons set forth in the rejection of Claim 11.

Regarding **claim 43**, Davis in view of APA view of Griesinger teaches a decoder module of claim 42. Griesinger, as modified further teaches where the multi-channel matrix decoder module generates audio output signals for rear loudspeakers whenever there is any signal on any of the plurality of input signals (LS, 178; RS, 180, Fig. 4; col. 20, lines 1-5, lines 21-26).

4. **Claim 35** is rejected under 35 U.S.C. 103(a) as being unpatentable over Davis U.S. Patent 5,862,228 in view of Admitted Prior Art (hereinafter, "APA"), and further in view of Gerzon et al. U.S. Patent 5,757,927 (hereinafter, "Gerzon").

Regarding **claim 35**, Davis in view of APA teaches a decoder module of claim 34. However, Davis in view of APA does not explicitly disclose where the multi-channel matrix decoder module generates audio output signals for rear loudspeakers whenever there is any signal that is at most a predetermined frequency on any of the plurality of input signals.

Gerzon teaches a multi-channel matrix decoder module including low frequency decoding matrix (e.g., low frequency decoding matrix 22, Fig. 10; col. 4, lines 28-35; see Figs. 1, 10, 13, and respective portions of the specification) that produces output signals for rear speakers (Fig. 13; L_B, R_B; for low frequency solution; at high frequency $L_B = R_B = 0$ for $\theta = 0$; see col. 33, line 65 – col. 34, line 5; col. 34, lines 34-41).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the multichannel active matrix decoder taught by Gerzon with the decoder module of Davis in view of APA such that the multi-channel matrix decoder module generates audio output signals for rear loudspeakers whenever there is any signal that is at most a predetermined frequency on any of the plurality of input signals as claimed for purpose of improving surround sound decoders and reproduction systems using such decoders, as suggested by Gerzon in column 1, lines 10-11.

5. **Claim 36** is rejected under 35 U.S.C. 103(a) as being unpatentable over Davis U.S. Patent 5,862,228 in view of Admitted Prior Art (hereinafter, "APA"), and further in view of Fosgate U.S. Patent 5,307,415 (previously cited).

Regarding **claim 36**, Davis in view of APA teaches a decoder module of claim 1. However, Davis in view of APA does not explicitly disclose where the input mixer produces at least one input signal pair using at least one adjacent input signal, the adjacent input signal being adjacent to at least one of the input signals corresponding to the input signal pair, the input mixer using the at least one adjacent input signal in order to provide smoother transition between output channels associated with the at least one adjacent input signal and associated with at least one input signal signals.

Fosgate teaches a surround processor including an input mixer (input conditioning and matrix means 6, Figs. 1, 2) and a matrix decoder (variable matrixing means 8, Figs. 1, 2) coupled to the input mixer (input conditioning and matrix means 6, Figs. 1, 2) in which provides faster but smoother and more realistic multichannel redistribution of sound from a stereophonic source (see Fig. 1, col. 3, lines 55-60) .

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the surround processor taught by Gerzon with the decoder module of Davis in view of APA such that the adjacent input signal being adjacent to at least one of the input signals corresponding to the input signal pair, the input mixer using the at least one adjacent input signal in order to provide smoother

transition between output channels associated with the at least one adjacent input signal and associated with at least one input signal signals as claimed for purpose of providing an improved variable matrix decoder for multichannel redistribution of audio signals, as suggested by Fosgate in column 1, lines 13-15.

Response to Arguments

6. Applicant's arguments filed on 08/18/08 have been fully considered but they are not persuasive.

Regarding Applicant's argument that: The Davis Reference fails to teach producing an input signal pair "being based on at least one of the audio input signals from a different location", Examiner respectfully disagrees since Davis teaches plurality of the input signal pairs (Lt, Rt, Lt1/Rt1 through Ltn/Rtn; 4:2 encoding, col. 1, lines 4-7) via mixer (102) and directed to different locations in the environment (to audio transducers, not shown; col. 4, lines 32-47; it is noted that locations are not limited to speakers location arrangement, e.g., left, right, center, surround; at the 2:4 decoder inputs Lt and Rt output L, R, C, S, see col. 1, lines 12-26).

Regarding Applicant's argument that: The Office Action mistakenly asserts that it would have been obvious to produce a plurality of input signal pairs, Examiner respectfully disagrees since Davis teaches plurality of the input signal pairs (Lt, Rt, Lt1/Rt1 through Ltn/Rtn; 4:2 encoding, col. 1, lines 4-7).

Regarding Applicant's argument that: The Office Action mistakenly asserts admitted prior art (APA) as teaching the invention, Examiner respectfully disagrees since (APA) discloses it may be a known active matrix decoder such as LOGIC 7®, DOLBY PRO LOGIC®, or the like," See Specification, page 26; Figure 7. It is noted that LOGIC 7® comprising 5.1 input generating 7 outputs, i.e., directed to different locations Left Back, Right Back.

Regarding Official notice, as can see from equation:

Left output (A)=L+ (0.9)RSL +(0.38)RSR +(0.707C-0.707jS)

where

Left output (A) becomes an encoded signal of five channel outputs. Left output (A) inputs to five channel decoder (90, Fig. 3), and the decoder provides seven channel outputs (col. 20, lines 1-5);

one of skill in the art would have been able to derive:

RI1=LF1+0.9xLSurI-0.38xRSurI+GrxCTRI,

where Gr comprises a ratio with the center input signal to control the amount of the center input signal in the rear input signal pair,

LFI comprises a left-front input signal,

LSurI comprises a left-surround input signal,

RSurI comprises a right-surround input signal, and

CTRI comprises a center input signal.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have implement the decoder module taught by Davis in view of APA and further in view of Griesinger such that where at least one of the signals in the rear input signal pair is produced by the input mixer according to an equation as claimed in order to optimize its psychoacoustic performance, as suggested by Griesinger in column 3, lines 39-41.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Con P. Tran whose telephone number is (571) 272-7532. The examiner can normally be reached on M - F (8:30 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Vivian C. Chin can be reached on (571) 272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/CPT/
September 18, 2008

/Vivian Chin/

Supervisory Patent Examiner, Art Unit 2615